



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,810	01/29/2004	Edward J. Wallner	DP-308844	5548

7590 12/18/2006
STEFAN V. CHMIELEWSKI
DELPHI TECHNOLOGIES, INC.
Legal Staff MC CT10C
P.O. Box 9005
Kokomo, IN 46904-9005

EXAMINER

PIPALA, EDWARD J

ART UNIT	PAPER NUMBER
----------	--------------

3663

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/18/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/767,810

Applicant(s)

WALLNER, EDWARD J.

Examiner

Edward Pipala

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-7, 12-15, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7, 12-15, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to Applicant's amendments and remarks filed 10/02/06.

Claims 1, 2, 8-11 and 16-26 have been canceled.

New independent claims 27 and 28 have been added.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallner (US Pub. 2002/0183899 A1) in view of EP 1 227 010 A2 (Yeh et al.)

Wallner ('899) discloses vehicle rollover sensing in which a safing signal is generated in the circumstance that an anticipated overturn condition of the vehicle is detected. Wallner discloses doing so with or through the use of a pair of angular rate sensors (gyros) which are oriented -45 degrees and -135 degrees with respect to the longitudinal axis of the vehicle (i.e., at an angle offset from the longitudinal and lateral axis of the vehicle), as shown in figure 1 with respect to elements 14 and 16, and as taught in sections 0020 and 0021 of Wallner ('899). Section 0021 of Wallner further discloses detecting vector components along or transverse to the longitudinal and

Art Unit: 3663

lateral axis of the vehicle using of the offset positioned sensors, as well as control logic for receiving the sensed signals and generating a "safing" signal (roll arming logic) as a function of at least one of these lateral and longitudinal components (as disclosed more particularly in sections 0021 through 0034). Figure 2 of Wallner discloses the use of low level guardband filters (36, 38) for each of the sensors, as well as a plurality of threshold comparators (50, 52, 54, 56) as part of the afore mentioned roll arming control logic. Figure 3 of Wallner further shows the oscillatory nature of the detected signal levels as well as the threshold level(s) which result in a roll arming/safing signal. Lastly, at the end of section 0005 Wallner discloses that accelerometers are often used (instead of gyros), but that automotive-grade low-G accelerometers are generally expensive and may have bias, offset and calibration issues.

Wallner ('899) does not particularly disclose the use of accelerometers in a vehicle rollover sensing system (instead of the gyros), nor the use of control or safing logic in which rough road conditions are determined to exist when both first and second acceleration values exceed an oscillation threshold for a predetermined period of time.

European published patent application EP 1227010 A2 (Yeh et al.) particularly discloses detecting a rollover event through the use of accelerometers, a roll-rate switched threshold, and in which it is taught that the accelerometer (80) senses the vehicle acceleration in a direction offset from a front-to-rear axis of the vehicle and provides an acceleration signal indicative thereof (section 0007). Sections 0034 through 0036 of teaches the use of bi-directional +/- 5G accelerometers in conjunction with a timing latch function, so as to make sure that conditions persist for at least a

Art Unit: 3663

predetermined period of time, which is taught to be useful in sensing vehicle dynamics (including a rough road condition).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the teachings of Yeh et al. (EP 1 227 010 A2) with respect to the use of accelerometers, sensing of dynamic conditions of a vehicle over a predetermined time period and the offset placement of the accelerometers with respect to the axis of the vehicle, within the context of the vehicle rollover sensing system of Wallner because Wallner has already acknowledged the usability of accelerometers in detecting an anticipated overturn condition of a vehicle as well as safing and control which is dependent on a plurality of threshold comparisons.

3. Claims 3-6 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallner ('899) and Yeh et al. (EP 1 227 010 A2) as applied to claims 27 and 28 above, and further in view of van der Pol et al. (6,397,133).

The combination of Wallner and Yeh et al. above provides for the use of accelerometers in a vehicle rollover sensing system, where Wallner teaches off-setting the sensors at -45° and -135° relative to the longitudinal axis of the vehicle (figure 1, section 0020), where Yeh et al. ('010) discloses the actual use of accelerometers in place of the gyros used by Wallner. This combination does not disclose the use of first and second accelerometers comprising a dual-axis accelerometer, for use in a determining whether a potential or immediate rollover condition exists.

Van der Pol et al., discloses the use of a dual-axis G-force sensor (accelerometer, 104) in figure 3-1 as part of a rollover detection system, which is further discussed at the top of column 7 as lying parallel to the underlying ground surface in the lateral and longitudinal directions as part of a rollover calculator in determining the present condition of the vehicle.

In that Wallner already teaches off-setting the roll sensors at an angle of 45° from the longitudinal axis of the vehicle, where van der Pol et al. discloses the use of a dual-axis accelerometer in relation the longitudinal and lateral directions of a vehicle being monitored for rollover conditions, then it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made use of the dual-axis accelerometer taught by van der Pol et al., within the context of the above combination of Wallner and Yeh et al., especially because Wallner already teaches use of an offset orientation of a rollover sensor of 45° and such orthogonal placement (as claimed) would readily lend it self to detecting rollover acceleration components in each of the longitudinal and lateral directions when a dual-axis accelerometer is used.

With respect to the claim limitations of being a low-g sensor (claims 4 and 13), please see the latter part of section 5 of Wallner, as well as figure 1 of Yeh et al. which shows the use of both a +/- 5g sensor and a +/- 50g sensor.

With respect to claims 6 and 15, which recite orienting the accelerometer at an angle of approximately 45° relative to the longitudinal axis, please see the figure 1 of Wallner as well as the above rejection.

Response to Arguments

Applicant's arguments filed 10/02/06 have been fully considered but they are not persuasive.

While Applicant may be technically correct in pointing out that "[n]o linear acceleration sensors or signals are disclosed in the system described therein" when referring to Wallner, Applicant then somewhat glosses over the fact that Wallner does indeed disclose that it is well known in the art of rollover sensing to make use of "automotive-grade low-G accelerometers", but that their use has been expensive and may be accompanied by bias, offset and calibration issues. This is also why Wallner was used by itself to form a rejection of the claims, but initially in combination with the European published patent application to Yeh et al. (EP 1 227 010), which clearly teaches the use of accelerometers.

Applicant then argues that Yeh et al. (EP '010) does not disclose providing two linear accelerometers in different directions to provide a safing signal in the case of a detected rollover situation. However, Wallner already teaches the use of two sensors (albeit gyros, to provide a safing signal), whereas Yeh et al., is used in the combination for the express teaching of the use of linear acceleration sensors instead of the gyros (rotation sensors of Wallner), as well as for the disclosure of what appear to be both low-g and high-g accelerometers (where the use of the low-g accelerometer then also reads on the respective dependent claims).

Applicant's last argument seems to be directed to the new language in newly submitted independent claims 27 and 28 referring to detecting "rough road" conditions prior to, or as a pre-rollover event, as part of the safing and/or control logic of the

Art Unit: 3663

rollover sensing apparatus (for detecting an anticipated overturn/rollover condition of a vehicle), where the rough road condition is to be determined or indicated by exceeding an oscillation threshold for a predetermined time period. This was addressed in the above rejection by reference to figure 3 of Wallner which shows what can be considered oscillatory roll and pitch signals indicative of a "rough road", which are used as part of the roll arming (safing) logic.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ejp



JACK KEITH
SUPERVISORY PATENT EXAMINER